FIVE NEW PARMELIAE FROM TROPICAL AMERICA

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In continuation of my monographic studies of Parmelia I am describing the following four species and one name as new. Chemical constituents were determined with thin-layer chromatography (Brinkmann pre-coated plates in two solvent systems: benzene-dioxane-acetic acid (90:25:4) and hexane-ether-formic acid (9:4:1), sprayed with 10% H_2SO_4 and heated 10 minutes as 110°C).

Parmelia chicitae Hale, sp. nov.

Thallus laxe adnatus, saxicola vel terricola, fragilis, 4-8 cm latus, albidus vel obscurascens, lobis linearibus, 1.5-2.0 mm latis, superne planus, nitidus, sorediis isidiisque destitutis, cortex superior 12-15µ crassus, stratum gonidiale 20-30µ crassum, medulla alba, 75-85µ crassa, cortex inferior 20µ crassus, subtus niger, dense rhizinosus, rhizinis sparse vel dense dichotome furcatis, ab margine projectis. Apothecia rara, adnata, 3-6 mm diametro, sporis octonis, 5X6-7µ; pycnidia numerosa, usque ad 200µ diametro.

Chemistry: Cortex K+ yellow (atranorin); medulla K-, C+, KC+ rose, P- (evernic acid, lecanoric acid, obtusatic acid, and norobtusatic acid). Chemistry of all specimens determined by Dr. Chicita Culberson, for whom the species is named.

Holotype: On rock, along the Carretera Inter-Americana at Asunción (3,335 m), Cerro de la Muerte, Costa Rica, W. L. Culberson, no. 13210, 28 March 1967 (US; isotypes in DUKE, TNS) (Fig. 1).

Nonsorediate KC+ red Hypotrachynas so common in tropical America usually contain alectoronic acid (e.g., P. lineariloba Kurok., P. gigas Kurok.). I had long puzzled over the chemistry of this species because in spite of the KC+ rose color test it did not contain alectoronic acid. In the meantime Dr. Culberson had an opportunity to analyse some Costan Rican collections and was able to unravel the very complex chemistry. The significance of this species, according to Dr. Culberson, is that it falls midway in biogenetic chemical evolution between the species with evernic acid (P. pulvinata Fée, P. rockii Zahlbr.) and those with barbatic and obtusatic acids (P. boliviana Nyl. group). Parmelia chicitae is not common and appears to be restricted to higher elevations in the American tropics.

Additional specimens examined. Costa Rica: Cerro de la Muerte, Crosby 3932 (DUKE, US). Venezuela: Sierra de Sto. Domingo, Merida, Dennis 1940 (BM, US). Peru: Mito, Bryan 364 (F, US).

Parmelia commensurata Hale, sp. nov.

Thallus ut in P. reticulata Tayl. sed differt norlobaridonum continente.

Chemistry: Thallus K+ yellow (atranorin); medulla K-, P-, C-, KC+ rose (norlobaridone, neoloxodic acid).

Holotype: On Acacia, 9 km E Jalapa on highway 140, elev. 1240 m, M. E. Hale, no. 19405, 13 March 1960 (US; isotypes in TNS, UPS) (Fig. 2).

Parmelia commensurata is superficially very close to P. reticulata and is classified with it in section Irregulares. The soralia are coarse and rather broad along the margins, and there is a tendency for the lobes to become revolute as in P. perlata (Huds.) Ach. Rhizines are quite dense, short, and sparsely squarrosely branched. The medulla is negative except for the rather weak KC test but the constituents are easily identified on thin-layer plates. In contrast P. reticulata is strongly K+ red and contains salazinic acid.

The nonsorediate counterpart is P. homotoma Nyl. (Type: Brazil, Weddel, in H), which also contains norlobaridone as one would predict from Vainio's report of a KC+ red color test. Both species are quite rare in tropical America.

Additional specimens examined. Haiti: Below Furcy, Dept. de l'Ouest, Wetmore 2683 (MSC, US). Honduras: Siguatepeque, Comayagua, Standley & Chacón 6778 (F, US). Colombia: 4 km W Cali, Queremal, Valle, Flenniken 2055 (US); 6 km S Medellin, Antioquia, Flenniken 1959 (US).

Parmelia imshaugii Hale, sp. nov.

Thallus adnatus, corticola, 4-6 cm latus, cinereo-alba, lobis subirregularibus, 3-5 mm latis, superne planus vel rugulosus, aetate rimosus, lamine sorediatus, soraliis orbicularibus vel diffusis, margine bulbato-ciliatus, ciliis brevibus, cortex superior 18-22μ crassus, stratum gonidiale 25-30μ crassum, medulla alba, 120-140μ crassa, cortex inferior 18-22μ crassus, subtus niger, modice vel dense rhizinosus, rhizinis simplicibus. Apothecia ignota.

Chemistry: Cortex K+ yellow (atranorin); medulla K+ yellow turning red, P+ orange (salazinic acid).

Holotype: Near Granizo, Montana Compana, Prov. Valparaiso, Chile, H. A. Imshaug, no. 36670, 21 Nov. 1965 (MSC; isotype in US) (Fig. 3).

This species is characterized by bulbate cilia and diffuse soralia. It is the only sorediate species in section Bicornuta. In general appearance it is close to P. brevirhiza Kurok., a Hypotrachyna species with dichotomously branched rhizines and no marginal cilia. Both species produce salazinic acid. Parmelia imshaugii is still known only from the type locality.

Parmelia inornata Hale, sp. nov.

Thallus adnatus, corticola, 5-10 cm latus, viridi-albidus, lobis subirregularibus, rotundatis, 3-7 mm latis, superne continuus, aetate rimosus, pro parte albo-reticulatus, sorediis isidiisque destitutis, cortex superior 8-10μ crassus, stratum gonidiale 20μ crassum, medulla alba, 110-130μ crassa, cortex inferior 6-9μ crassus, subtus centrum versus niger rhizinosusque, rhizinis sparsis, simplicibus, ambitu subnudus, castaneus. Apothecia numerosa, substipitata, disco pallido, imperforata, sporis octonis, 7-8X16-18μ; pycnidia numerosa, 60-80μ diametro, microconidiis 1X6μ.

Chemistry: Cortex K+ yellow (atranorin); medulla K-, P+ red (protocetraric acid).

Holotype: North of East End Village, Grand Cayman, H. A. Imshaug, no. 24454 (MSC; isotype in US) (Fig. 4).

Parmelia inornata represents another West Indian endemic in section Cyclocheila with protocetraric acid, a list that now includes P. caribaea Hale, P. martinicana Nyl., and P. raunkiaeri Vainio. It has rather broad lobes and a distinct bare zone below, similar in many respects to usnic acid-containing P. caperata (L.) Ach., but in overall appearance it is unlike any other members of the section.

Additional specimens examined. Bahamas: Andros, Brace 5067 (NY), Acklin's Island, Brace 4297 (NY). Haiti: West of Cap Haitien, Dept. de Nord, Imshaug 22659 (MSC, US). Grand Cayman: Near old coral castle, Imshaug 24543 (MSC, US).

Parmelia simulans Hale, nom. et stat. nov.

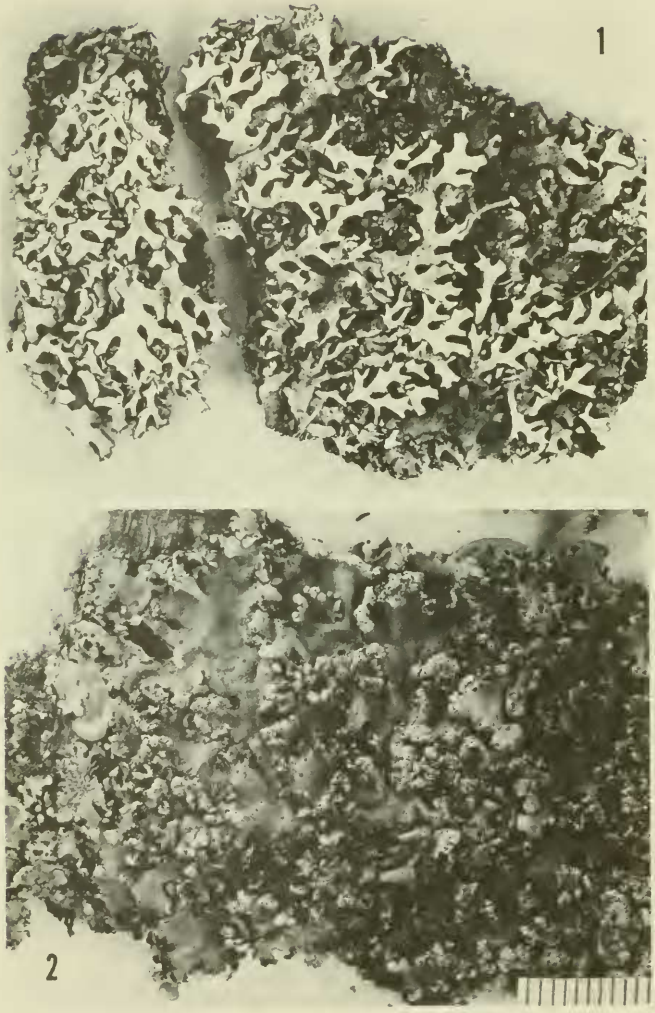
Based on P. macrocarpoides var. subcomparata Vainio, Acta Faun. Fl. Fenn. 7(7):43. 1890.

Lectotype: Sitio, Minarum, Brazil, Lich. Bras. Exs. 918 (TUR).

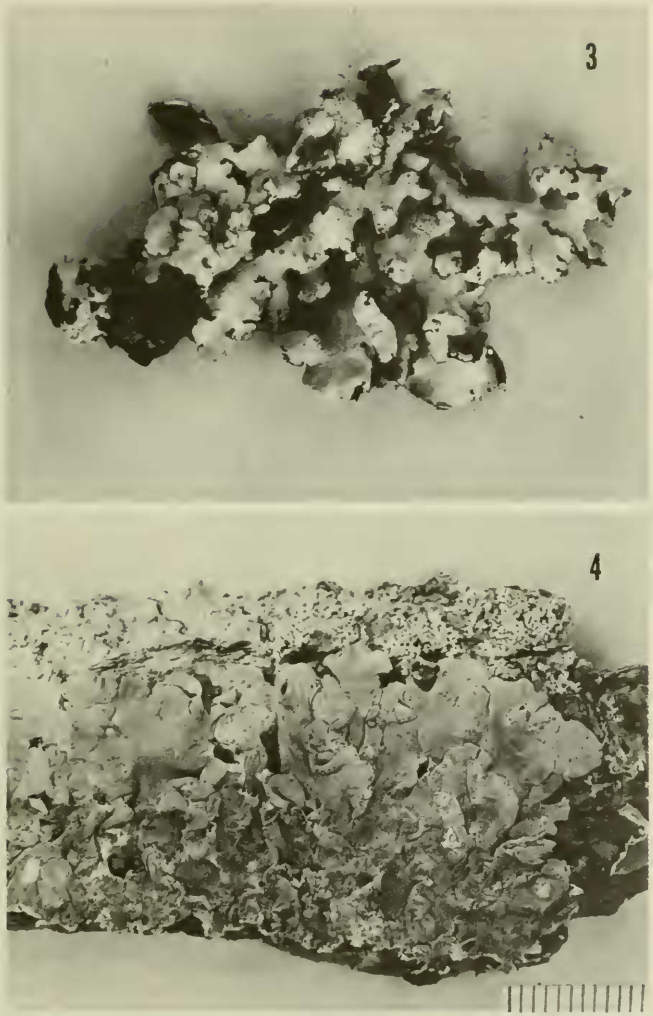
Chemistry: Cortex K+ yellow (atranorin); medulla K-, P-, C-, KC- (caperatic acid).

Parmelia simulans would at first be identified as P. reticulata Tayl. without a color test. The primary distinction would be the K- test. Caperatic acid replaces K+ red salazinic acid, the diagnostic component of P. reticulata. Morphologically the two species have similar reticulate cracking to the lobe margins, but P. simulans tends to be strongly laciniate, especially toward the center of the thallus, the coarse soralia being produced most often on these laciniae rather than on the main lobe margins as in P. reticulata. Both species have dense, simple to squarrosely branched rhizines below. Parmelia simulans has a much more restricted distribution than the cosmopolitan P. reticulata. It appears to be the sorediate counterpart of P. macrocarpoides Vainio, a rare endemic in Brazil. There is no isidiate counterpart.

Additional specimens examined. Tennessee: Backbone Rock Recreation Area, Johnson Co., Hale 18034a (US), Trail to Alum Cave, Mt. Le Conte, Sevier Co., Hale 36941 (US). North Carolina: Fodderstack Mt., Macon Co., Moore 1940 (DUKE). Mexico: 5 km E Las Vigas, Veracruz, Hale 20910 (US), Lago de Monte Bello, Chiapas, Hale 20369, 20416, 20467 (US). Haiti: Below Furcy, Dept. de l'Ouest, Wetmore 2679 (MSC, US), Fabius (US). Dominican Republic: Vicinity of Constanza, La Vega, Allard 16541, 17691a, 17442, 17748, 17750, 17679 (US). Brazil: Sitio, Minas Gerais, Vainio, Lich. Bras. Exs. 582B (TUR, FH, UPS, syntype of var. subcomparata). Uganda: 1 km NW Rushasha, Kigeza, Lye L31 (US). Union of South Africa: Between Donnybrook and Creighton, Natal, Doidge 1607 (PRE).



Figures 1, 2. 1. Parmelia chicitae (holotype). 2. Parmelia commensurata (holotype). Scale in mm.



Figures 3, 4. 3. Parmelia imshaugii (holotype). 4. Parinornata (Holotype).